IN THE UNITED STATES
PATENT AND TRADEMARK OFFICE

PATENT APPLICATION

Appelants:	**Emeline C. Tsai et al.**	Case:	**DIVA/118DIV1**
Serial No.:	**10/690,856**	Examiner:	**Shang, Annan Q**
Filed:	**10/22/03**	Group Art Unit:	**2623**
Confirmation #:	**6932**		
Title:	**VISUAL IMPROVEMENT OF VIDEO STREAM TRANSITIONS**		

MAIL STOP APPEAL BRIEF-PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

SIR:

APPEAL BRIEF

Appellants submit this Appeal Brief to the Board of Patent Appeals and Interferences on appeal from the decision of the Examiner of Group Art Unit 2623 mailed March 25, 2008 finally rejecting claims 1 – 4, 10 – 14, and 21 – 33.

In the event that an extension of time is required for this Appeal brief to be considered timely, and a petition therefor does not otherwise accompany this Amended Appeal Brief, any necessary extension of time is hereby petitioned for.

Appellants believe the only fee due is the **$270** Appeal Brief fee which is being charged to counsel's credit card. In the event Appellants are incorrect, the Commissioner is authorized to charge any other fees to Deposit Account No. 20-0782/**SEDN/118DIV**.

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Real Party in Interest

The real party in interest is SEDNA PATENT SERVICES, LLC.

Related Appeals and Interferences

Appellants assert that no appeals or interferences are known to Appellants, Appellants' legal representative, or assignee which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

Status of Claims

Claims 1 – 33 are pending in the application. Claims 5 – 9 and 15 – 20 are withdrawn from consideration. Claims 1 – 20 were originally presented in the application. Claims 21 – 33 were added by amendment. Claim 27 has been canceled. Claims 1, 10, and 25 have been amended. Claims 1 – 4, 10 – 14, and 21 – 33 stand finally rejected as discussed below. The final rejection of claims 1 – 4, 10 – 14, and 21 – 33 is appealed.

Status of Amendments

All claim amendments have been entered.

Summary of Claimed Subject Matter

Embodiments of the present invention are generally directed to digital video systems. More specifically, one embodiment provides a method for transitioning between digital video streams. The method includes serving a first video stream having a packet identifier (PID) value; determining shifts for applying to timing information in a second video stream in order to generate recalculated timing information; and replacing the timing information in the second video stream with the recalculated timing information. The timing shifts are determined based on the last received clock reference. The second video stream has the same PID value as the first video stream. The method further includes transitioning to the second video stream in an immediate and smooth manner and serving the second video stream.

For the convenience of the Board of Patent Appeals and Interferences, Appellants' independent claims 1 and 10 are presented below in claim format with elements reading on the various figures of the drawings and appropriate citations to at least one portion of the specification for each element of the appealed claims.

Claim 1 positively recites (with reference numerals, where applicable and cites to at least one portion of the specification added):

1. (previously presented) A method (900, 1000, 1100, 1300) for transitioning between digital video streams, the method comprising:

serving (302, 602) a first video stream with a packet identifier (PID) value;

determining (1002) shifts needed to be applied to timing information in a second video stream in order to generate recalculated timing information; wherein the shifts are determined based on a last received clock reference;

replacing (1002) the timing information in the second video stream with the recalculated timing information;

transitioning (354, 604) in an immediate and smooth manner to the second video stream having the same PID value; and

serving (306, 606) the second video stream.

Support for the elements of claim 1 can be found at least from the following sections of Appellants' specification: page 2, line 11 – page 3, line 17; page 6, lines 10 – 17; page 10, line 5 – page 16, line 12; and Figs. 3B, 7 – 14.

Claim 10 positively recites (with reference numerals, where applicable and cites to at least one portion of the specification added):

10. (previously presented) A method (900, 1000, 1100, 1300) for transitioning between digital video streams, the method comprising:

transmitting (302, 602) a first video stream;

wherein the first video stream has associated (802) with it a plurality of transition points comprising respective beginnings of a stripe section of a storage drive in a storage array;

transitioning (354, 604) from the first video stream to a second video stream;

determining (1002) shifts needed to be applied to timing information in the second video stream in order to generate recalculated timing information; wherein the shifts are determined based on a last received clock reference;

replacing (1002) the timing information in the second video stream with the recalculated timing information; and

transmitting (306, 606) the second video stream.

Support for the elements of claim 10 can be found at least from the following sections of Appellants' specification: page 2, line 11 – page 3, line 17; page 6, lines 10 – 17; page 8, line 23 – page 16, line 12; and Figs. 3B, 7 – 14.

Grounds of Rejection to be Reviewed on Appeal

The Examiner has rejected claims 1 – 4, 10 – 14, and 21 – 33 under 35 U.S.C. §102(b) as being anticipated by Radha et al., U.S. Patent No. 6,806,909 (hereinafter "Radha").

ARGUMENTS

REJECTION UNDER 35 U.S.C. §102

The Examiner has rejected claims 1 – 4, 10 – 14, and 21 – 33 under 35 U.S.C. §102(b) as being anticipated by Radha.

The Applicable Law

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).

"To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.'" *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999); *see also* MPEP § 2112.

The Reference

In general, Radha provides a method and apparatus for carrying out seamless splicing MPEG-2 multimedia programs. More specifically, a first and second encoded MPEG-2 data streams for a first and second program are respectively provided. Each stream includes video and audio components. Each component has multiple splice-in points with respective begin-presentation times and splice-out points with respective end-presentation times. To splice the second program stream in the first program stream, approximately aligned seamless video splice-in and seamless video splice-out points in the respective

first and second video streams are first identified. The second video stream is spliced into the first video stream, while the first audio stream continues to be broadcasted. Then, corresponding audio splice-in and splice-out points are identified and the second audio component is spliced into the first audio component. Finally, decoding and presentation times of the second stream are adjusted after respective splice-in points to be consistent with such times in the first program (See Radha, Abstract; see also Radha, col. 5, line 29 – col. 6, line 17).

The Examiner's Arguments

1. The Examiner argues that Radha teaches the following element of Appellants' claim 1: "transitioning in an immediate and smooth manner to the second video stream having the same PID value" as the first video stream. More specifically, the Examiner states that "Radha teaches the '... the method of the invention for splicing MPEG-2 multimedia programs, in the same or different multimedia data streams...'" The Examiner further states that "Radha teaches transitioning seamlessly from a first video stream to the second video, with the same PID value (time value). In other words, seamless transition takes place if the first PID value (time value) is equal to the second PID value (time value)." Based on these teachings, the Examiner concludes that Radha teaches the above recited element of Appellants' claim 1 (see Final Office Action, page 2; see also Advisory Action, page 2).
2. The Examiner argues that Radha teaches "the first video stream ha[ving] associated with it a plurality of transition points comprising respective beginnings of a stripe section storage drive in a storage array," as recited in independent claim 10. More specifically, the Examiner argues that "the teaching of: '... pack the sate stream into disks blocks and ... group of blocks are stripped within the HDS...' and 'reading or writing all the files in all the HDSs...'" teach the above

recited element of Appellants' claim 10 (see Advisory Action, page 2; see also Final Office Action, page 3).

Appellants' Response to the Examiner's Arguments

1. Radha fails to teach or suggest at least "transitioning in an immediate and smooth manner to the second video stream having the same PID value" as the first video stream, as recited in independent claim 1 (emphasis added).

The Examiner appears to make the following two arguments in support of the conclusion that the above recited element of Appellants' claim 1 is taught by Radha:

(i) because Radha teaches multimedia programs being spliced in the same multimedia data stream, a first video stream and a second video stream, in order to be spliced into the same video stream, must have the same PID values; and

(ii) because Radha teaches that seamless transition from one stream to another stream takes place when the time value of the first video is equal to the time value of second video, both videos must have the same PID values.

Appellants respectfully note that each of these arguments is faulty.

More specifically, to be valid, the first Examiner's argument requires at least one of the following assumptions to be valid: that Radha's video stream and multimedia data stream are one of the same or that all video streams within the multimedia data stream have the same PID value. However, neither of these assumptions is correct. First, it is clear from the Radha's disclosure that the multimedia data stream is not the same as a multimedia program. Rather, the multimedia data stream includes multiple multimedia programs, each with a video component (i.e., video stream), audio component, and caption component (see e.g., Radha, col. 15, lines 11 – 16).

Second, the multimedia data stream includes multiple multimedia programs ("hundreds of programs") and packets for different programs are multiplexed together (see Radha, col. 2, lines 60 – 65). A decoder selects

packets related to a particular program using PIDs associated with the program, where the PIDs define which PID streams contain that program's data (see e.g., Radha, col. 2, lines 42, 60 – 65). Accordingly, it is likely, and certainly possible, that Radha's multimedia data stream contains video streams having different PIDs. Therefore, the first Examiner's argument is faulty.

The second Examiner's argument relies on assumption that a PID value is the same as a time value. Appellants disagree with such an interpretation of Radha. As understood by a person skilled in the art and as such terms are used by Radha, PID values and time values are entirely different characteristics of streams, and video streams in particular (compare e.g., Radha, col. 2, lines 41 – 45 with e.g., Radha, col. 47 – 51). PID values are used for identifying elementary streams in a MPEG transport stream (see e.g., Radha, col. 2, line 42), while the time values represent presentation times of a program relative to the program clock reference time (PCR) (see e.g., Radha, col. 9, lines 48 – 64). Accordingly, it is simply improper to equate a PID value with a "time value."

For example, in connection with the splicing component of a second program to that of a first program, one of Radha's portions cited by the Examiner discloses that: "the presentation times in the second program are changed so that the first presented portion of the first component of the second program has a begin-presentation time which is the same as the end-presentation time of the last presented component of the first program" (see Radha, col. 5, lines 55 – 59). Though Radha describes and uses the term "PID" in other portions of the disclosure, Radha does not use this term in the above restated portion and does not connect the presentation times to PIDs in any manner. Therefore, because PIDs are not related to the begin-presentation or end-presentation times, even if the begin-presentation time and the end-presentation time of video components of the first and second programs are the same, it does not follow that these components of the respective programs would have the same PID value.

Other portions of Radha cited by the Examiner with respect to Appellants' element of "transitioning in an immediate and smooth manner to the second video stream having the same PID value" (see Final Office Action, pages 2 and

4) similarly fail to teach or suggest that the second video stream has the same PID value as the first video stream. More specifically, Col. 7, lines 51-55 describes a splicer for changing presentation times in the second program. Col. 10, lines 7 – 27 describes input and output streams of a digital play-to-air (PTA) as related to respective video and audio splice points. Col. 15, line 42 – col. 16, line 63 describes details of various steps for splicing out an old program and splicing in a new program in a data stream. The steps include selecting of video or audio splice-in and splice-out points, determining whether any of video or audio frames should be dropped or skipped, and so on.

Col. 18, line 51 – col. 20, line 41 describe functions of various components of the splicer shown in Fig. 10, while col. 21, lines 1 – 41 describe components of the decoder shown in Fig. 11. However, these portions do not provide any support for the Examiner's conclusion that the second video stream has the same PID value as that of the first video stream, as recited in Appellants' claim 1. Because, as understood by a person skilled in the art, time values are different and not related to PID values and because Radha does not provide any evidence to the contrary, Radha does not teach or suggest at least "transitioning in an immediate and smooth manner to the second video stream having the same PID value" as the first video stream, as recited in independent claim 1.

2. Radha fails to teach or suggest at least that "the first video stream has associated with it a plurality of transition points each comprising a beginning of a stripe section of a storage drive in a storage array," as recited in independent claim 10 (emphasis added).

The Examiner cites multiple portions of Radha for teaching "... pack the data stream into disks blocks and ... groups of blocks are striped within the HDS..." and "... reading or writing all the files in all the HDSs..." and that the HDS (hard drive system) contains redundant arrays of inexpensive disks. Based on such teachings, the Examiner concludes that Radha anticipates Appellants' claim 10. Appellants respectfully disagree.

Nowhere does Radha teach transition points being related to specific locations of a stripe section, or comprising a beginning of a stripe section of a storage device, as provided in claim 10. Rather, Radha merely describes a general concept of storing by striping. The only portion of the Radha disclosure that discusses data storage by striping is col. 17, lines 22-36, which states:

> "[d]uring storage, input and/or output (I/O) units (IOSs) 243-250 pack the data stream into disk blocks. Groups of the disk blocks are striped across hard drive systems (HDSs) 251-260 by commutator 261. Each HDS includes one or more redundant arrays of inexpensive disks (RAID) and each RAID includes 2 to 14 hard drives across which the groups of blocks are striped within the HDS. Thus, each IOU has continuous access for reading or writing all the files in all the HDSs."

As could easily be seen, in this portion Radha provides only a general explanation of storing data by striping across a number of hard drive systems. However, Radha does not provide any specific teaching of transition points that comprise a beginning of a stripe section of a storage device. In fact, transition points are not even mentioned and no kind of relations between transition points and striping is defined.

The other cited portions of Radha, i.e., col. 17, line 60 – col. 18, line 40; col. 20, lines 13 – 35 and col. 21, lines 1 – 41, similarly fail to teach or suggest transition points that comprise a beginning of a stripe section of a storage device. Rather, these portions describe a splicer of Fig. 10 and a decoder of Fig. 11 with their various components for selecting splice-out and splice-in points (i.e., transition points) and dropping frames to prevent overflowing of video buffers. Though transition points (i.e., splice-out and splice-in points) are discussed, Radha does not suggest any relation between the transition points and stripe sections, except that the transition points are located in multimedia streams that may be stored. Certainly, Radha does not teach or suggest transition points comprising beginnings of stripe sections.

The Examiner appears to suggest that Radha teaches transition points comprising beginnings of stripe sections because Radha discloses transition points and the general concept of storing by stripping. Appellants respectfully

disagree. Not only, as discussed above, such a relation between transition points and stripe sections is not expressly defined by Radha, but it is also not inherent from the Radha arrangement. For example, splice-in and splice-out points of video streams may be stored in the middle or at the end of stripe sections or storage locations may vary from one stripe section to another. Accordingly, Radha does not teach or suggest at least that "the first video stream has associated with it a plurality of transition points each comprising a beginning of a stripe section of a storage drive in a storage array," as recited in independent claim 10.

Conclusion

For the reasons discussed above with respect to point 1, Radha does not teach or suggest each and every element of Appellants' independent claim 1. As such, independent claim 1 is not anticipated by Radha and is allowable under 35 U.S.C. §102. Furthermore, for the reasons discussed with respect to point 2, Radha does not teach or suggest each and every element of Appellants' independent claim 10. As such, independent claim 10 is not anticipated by Radha and is allowable under 35 U.S.C. §102.

Dependent claims 2 – 4, 11 – 14 and 21 – 33 depend, directly or indirectly, from independent claims 1 and 10 and recite additional limitations thereof. As such, and for at least the reasons discussed above, Appellants submit that these dependent claims also are not anticipated by Radha and are allowable under 35 U.S.C. §102.

Therefore, the rejection of claims 1 – 4, 10 – 14, and 21 – 33 under 35 U.S.C. §102 is improper. Accordingly, withdrawal of the rejections and allowance of all claims is respectfully requested.

CONCLUSION

Thus, Appellants submit that all of the claims presently in the application are allowable under the provision of 35 U.S.C. §102.

For the reasons advanced above, Appellants respectfully urge that the rejection of claims 1 – 4, 10 – 14, and 21 – 33 is improper. Reversal of the rejection of the Final Office Action is respectfully requested.

Respectfully submitted,

10/18/07
Date

Eamon J. Wall
Registration No. 39,414
Patterson & Sheridan, LLP
Attorneys at Law
595 Shrewsbury Avenue, Suite 100
Shrewsbury, New Jersey 07702
Telephone: (732) 530-9404
Facsimile: (732) 530-9808
Attorney for Appellant(s)

CLAIMS APPENDIX

1. (previously presented) A method for transitioning between digital video streams, the method comprising:

serving a first video stream with a packet identifier (PID) value;

determining shifts needed to be applied to timing information in a second video stream in order to generate recalculated timing information; wherein the shifts are determined based on a last received clock reference;

replacing the timing information in the second video stream with the recalculated timing information;

transitioning in an immediate and smooth manner to the second video stream having the same PID value; and

serving the second video stream.

2. (original) The method of claim 1, wherein transitioning in an immediate and smooth manner comprises transitioning without an unsynchronized delay at a beginning of the second video stream.

3. (original) The method of claim 1, wherein transitioning in an immediate and smooth manner comprises transitioning without an unstable period at an end of the first video stream.

4. (original) The method of claim 1, wherein transitioning in an immediate and smooth manner comprises transitioning without an unsynchronized delay at a beginning of the second video stream and without an unstable period at an end of the first video stream.

10. (previously presented) A method for transitioning between digital video streams, the method comprising:

transmitting a first video stream;

wherein the first video stream has associated with it a plurality of transition points comprising respective beginnings of a stripe section of a storage drive in a storage array;

transitioning from the first video stream to a second video stream;

determining shifts needed to be applied to timing information in the second video stream in order to generate recalculated timing information; wherein the shifts are determined based on a last received clock reference;

replacing the timing information in the second video stream with the recalculated timing information; and

transmitting the second video stream.

11. (original) The method of claim 10, wherein the timing information includes decode and presentation time stamps.

12. (original) The method of claim 10, wherein the timing information includes clock reference values.

13. (original) The method of claim 10, where the method is performed at a distribution headend.

14. (original) The method of claim 10, where the method is performed at a remote hub of a distribution system.

21. (previously presented) The method of claim 10, wherein the shifts applied to timing information are adapted to a lag between the time of a transition at a server and the time of the transition at a subscriber station.

22. (previously presented) The method of claim 10, wherein the shifts comprise differences between a program clock reference of the first video stream and a program clock reference of the second video stream.

23. (previously presented) The method of claim 10, wherein a first packet including recalculated timing information is associated with a discontinuity indicator.

24. (previously presented) The method of claim 23, wherein the discontinuity indicator is adapted to cause a clock reset at a subscriber station.

25. (previously presented) The method of claim 10, wherein each transition point is identified via a discontinuity indicator.

26. (previously presented) The method of claim 25, wherein the transition points are associated with respective reference frames.

27. (canceled)

28. (previously presented) The method of claim 25, wherein the transition points are associated with respective reference frames.

29. (previously presented) The method of claim 25, wherein the transition points are associated with respective NULL packets.

30. (previously presented) The method of claim 10, further comprising:

receiving a signal to transition from the first video stream to the second video stream; and

removing packets of the first video stream, and transmitting picture repeat packets in substitute therefore.

31. (previously presented) The method of claim 30, where the picture repeat packets comprise zero motion vectors.

32. (previously presented) The method of claim 30, further comprising:

after receiving the signal to transition, and before removing packets, transmitting packets of the first video stream until a first packet comprising a reference picture.

33. (previously presented) The method of claim 10, further comprising:

receiving a signal to transition from the first video stream to the second video stream; and

removing packets of the first video stream, and inserting NULL packets in substitute therefore.

EVIDENCE APPENDIX

None

RELATED PROCEEDINGS APPENDIX

None